

Title (en)  
EXTENDED RANGE INTERFEROMETRIC REFRACTOMETER

Title (de)  
INTERFEROMETRISCHES REFRAKTOMETER MITERWEITERTEM MESSBEREICH

Title (fr)  
REFRACTOMETRE INTERFEROMETRIQUE A PLAGES ETENDUES

Publication  
**EP 1017981 A2 20000712 (EN)**

Application  
**EP 98926479 A 19980608**

Priority  
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• US 87093797 A 19970606

Abstract (en)  
[origin: WO9855847A2] An interferometric refractive index detector is described with an almost unlimited range of operation in contrast to a conventional interferometric refractometer of the so-called polarization type whose dynamic range is restricted to a relatively narrow range of refractive indices. The measurement of the refractive index difference between a sample and reference cell is achieved by measuring the angle through which the plane of polarization of a combined beam has rotated. For the conventional device, this angle is restricted to about pi radians which corresponds to a half wavelength shift between the reference and sample components of said combined beam. The extended range device disclosed permits this angle to be tracked and measured accurately over many rotations. The rotation tracking is achieved by one of three embodiments, the preferred of which involves the use of a liquid crystal retarder. All three embodiments permit the measurement of both the sine and cosine of the rotation angle and, thereby, allows a four quadrant arctangent calculation to yield the rotation angle directly.

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